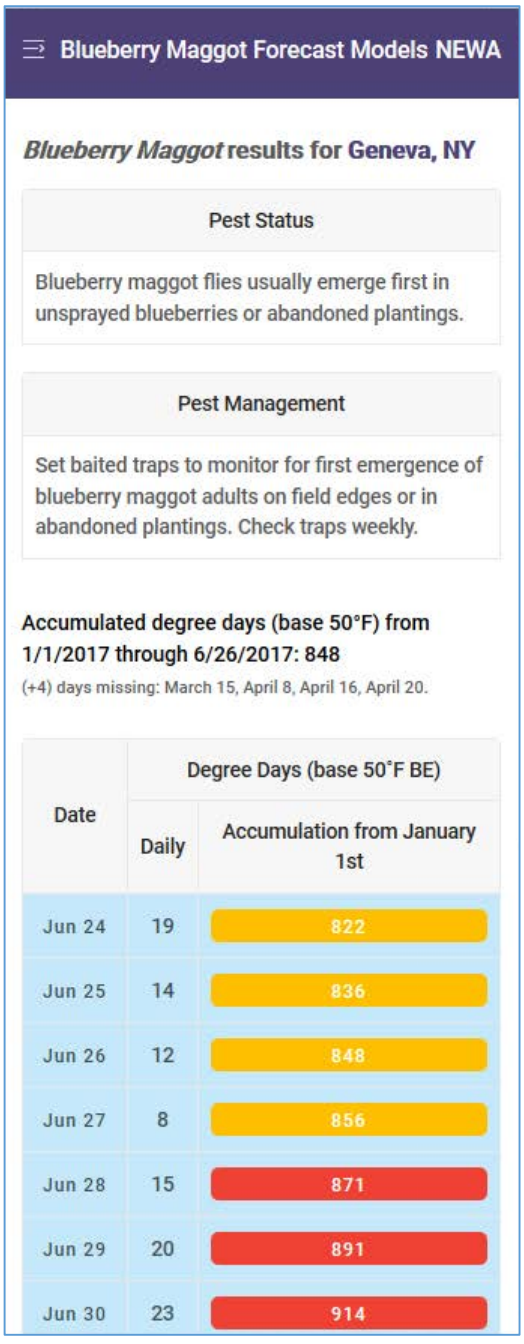
2016 Cornell Berry Research, Juliet Carroll, NYS IPM Program, CCE
Progress report to NYS Berry Growers Association Board, Geneva, NY, Dec 2017

Adapting crop management tools for berry growers that have been built from weather data.

Greg Loeb, Entomology, Kerik Cox, Plant Pathology, and Art DeGaetano, Earth and Atmospheric Sciences, are collaborating on this project.



Blueberry Maggot Forecast Models NEWA

Blueberry Maggot **results for Geneva, NY**

Pest Status
Blueberry maggot flies usually emerge first in unsprayed blueberries or abandoned plantings.

Pest Management
Set baited traps to monitor for first emergence of blueberry maggot adults on field edges or in abandoned plantings. Check traps weekly.

Accumulated degree days (base 50°F) from 1/1/2017 through 6/26/2017: 848

(+4) days missing: March 15, April 8, April 16, April 20.

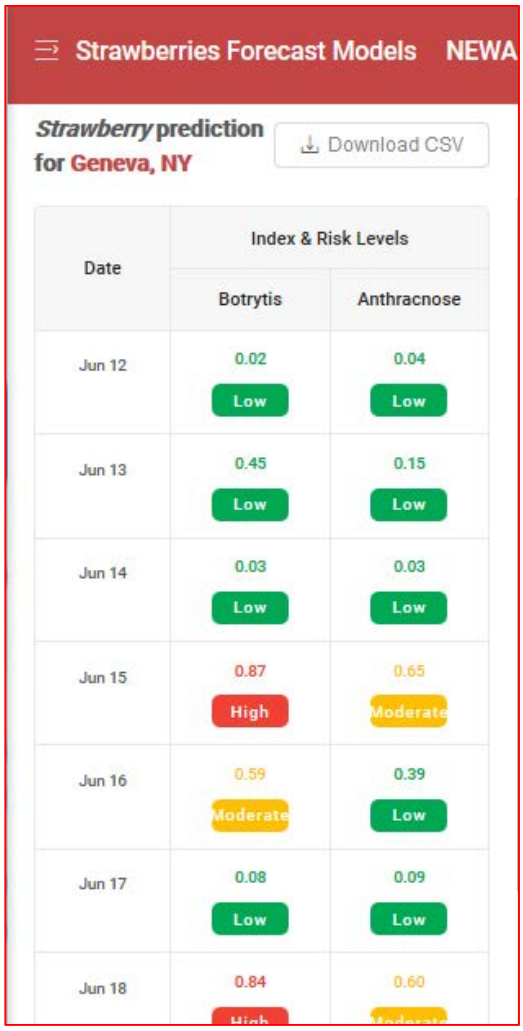
Date	Degree Days (base 50˚F BE)	
	Daily	Accumulation from January 1st
Jun 24	19	822
Jun 25	14	836
Jun 26	12	848
Jun 27	8	856
Jun 28	15	871
Jun 29	20	891
Jun 30	23	914

We have completed work on the blueberry maggot model for inclusion in the Network for Environment and Weather Applications (NEWA). The draft model has been sent to colleagues in New York, Connecticut, New Jersey, Michigan and North Carolina for review. These scientists will be validating the model in 2018 in identified highbush blueberry plantings.

One reviewer said this will be very useful for growers in their state. The model predicts when blueberry maggot flies will emerge from pupae in the soil, letting users know it's time to hang baited traps. This model will support the Canadian Quarantine Plan for this insect and should New York blueberry industry increase to wholesale production, use of the IPM strategy tied to monitoring will meet quarantine requirements. We are collaborating with Rufus Isaacs, Michigan State, and Hannah Burrack, NC State.

A screen shot of the user interface for the model is shown on the left. The notation about missing data is a draft attempt to alert users that missing data was substituted from a sister station in the network.

We are planning for a mummy berry model. From the literature in different states and for different types of blueberry (lowbush, highbush, rabbiteye) it is clear that there is considerable variation in model assumptions and logic. The pathogen has two distinct forms, primary inoculum from overwintering sclerotia in mummified fruit and blighted shoots covered with white spores of secondary inoculum to infect floral tissues. Given the complexity of these models, we will program and field test a primary infection model that Cox has worked with. The mummy berry model is slated for completion by year's end with field testing in 2018.



A cranberry fruitworm model applicable to blueberry and one for cranberry developed in Wisconsin, will be the basis for our NEWA model on this pest. We will collaborate with Hilary Sandler, UMass Cranberry Station, on field testing in blueberry and cranberry in 2018.

Pulling data into NEWA from 10 NYS Mesonet stations is underway with Feb 1, 2018 as the target date for completion of this collaboration between NYS IPM, the Northeast Regional Climate Center, and the University at Albany. The NYS Department of Agriculture and Markets and the College of Agriculture and Life Sciences were instrumental in helping achieve this goal.

The strawberry Botrytis and anthracnose models are running in draft mode. A year-long user interface for these models will be developed in December 2017. These models were developed in the Midwest on June strawberries and validated in Florida in an annual production system. We are collaborating with Natalia Perez, University of Florida. Extension review and field testing will be done in 2018.

We anticipate that the models field tested in 2018 will be available on NEWA in 2019.